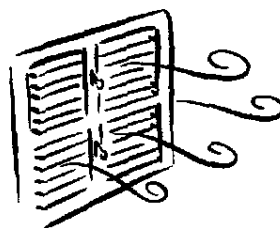


SECTION



USING AIR-PRESSURE
TO
MANAGE ODORS



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IN A HURRY? Read This . . .

Here's what you need to know as a restaurant owner or manager. This Technical Bulletin is brief but packed with facts. If you're in a hurry, here's the best way to use it:

- Read *The Importance of Good Indoor Air Quality (IAQ)* on page 8 to learn why ventilation is important.
- Read *IAQ Basics: What Do I Need to Know?* on page 12 to learn the essentials of managing a good indoor environment.
- Read *Solutions to Common IAQ Problems* on pages 15-16 to help you identify and solve existing problems.
- Share the *Twelve Steps to Better Operations* checklist on page 42 with your employees, contractors, and vendors.
- Learn about the current IAQ standards in *Laws, Regulations, and Standards* on page 50.
- Call (800)722-9093 to reach the **ENVIRONMENT[®] HOTLINE** with questions about improving indoor environmental quality and for copies of this Technical Bulletin to hand out to employees and contractors.



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HOT NIGHTS
COOL MUSIC
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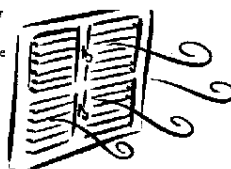
Filters and Air Cleaners

The original purpose of air filters was to protect HVAC equipment from dust and dirt. Today, we expect filters to protect building occupants and enhance indoor air quality. Understanding a little bit about air filters and air cleaners can go a long way in helping you to make the right decisions about filter choices.

The difference between the terms air filter and air cleaner is that a filter is usually thought of as useful in removing dust (airborne particulate matter) and an air cleaner is usually thought of as removing chemicals (gases and vapors, typically things that produce odors). The science of air filters is reasonably well established. The state of knowledge for air cleaners is better described as art.

Air filters are rated by many systems, which can cause confusion. The most reliable rating today is known as the ASHRAE dust-spot method. This standard for rating has been used for more than fifty years. Using filters rated over 65% by the ASHRAE dust-spot method provides sufficient filtration to protect HVAC equipment from the build-up of dust and dirt and provides some protection for occupants from respirable particulate matter (very fine dust, smaller than one tenth the diameter of a human hair). Filters rated over 85% by the ASHRAE dust-spot method provide demonstrable reductions in respirable particulate matter.

Filter vendors use a variety of other rating methods to make claims about the effectiveness of their filters. A common one is "95% arrestance" or similar wording.



There are standard test methods for this claim as well. However, a 95% arrestance translates typically to something in the range of 10% efficiency by the dust-spot method, and does not provide protection even for the HVAC equipment. You should consistently ask vendors to show the ASHRAE dust-spot efficiency when you select filters.

Air cleaning devices come in a variety of types including activated carbon. Activated-carbon air cleaners are well proven by experience in odor control. Be aware that they have very specific capacities which determine the effective life of the air cleaner. You will need to know the projected service life of an air cleaner from the vendor in order to pick the one that is best for your application. These devices must be maintained and the activated-carbon bed replaced regularly to remain effective.

Another group of air cleaners on the market uses negative ion and ozone-generating devices. However, their effectiveness and safety still face scientific challenges. Ozone is known to be a potentially harmful contaminant in indoor air. While it may have some specialized uses for air cleaning, its uncontrolled use is not recommended.

Good Housekeeping Ideas

Many products intended to improve the dining environment actually serve to make it less pleasant for customers. For example, cleaning fluids that use a strong odor to mask other smells—to deodorize the area—use chemical compounds that are common irritants to many people. Don't try to mask problems with deodorants. To mask an odor with another odor complicates the primary problem and makes solving it more difficult. The best solution is keeping things clean.

Selection of housekeeping products represents an opportunity to benefit your employees, your customers, and your bottom line at the same time. Here is a four-step process to improve housekeeping product selection:

1. Review all cleaning and pest control products for their toxicity, which can be done by asking vendors for copies of material safety data sheets (MSDSs) that spell out chemical contents and health effects.
2. Select the smallest possible number of products, with the least potential for adverse health effects, to serve your needs.
3. Test products for their ability to perform the housekeeping tasks you want to accomplish and for the odors they leave after use.
4. Keep a notebook of MSDSs for all currently used products and update it regularly.

Selecting products with low known toxicities will reduce the potential for ill effects among your employees; reducing odors will improve your customers' perception of the indoor environment; and limiting the number of products you buy can reduce your net cost.



Ventilate with outdoor air during and after cleaning to minimize odors. Often housekeeping is done after hours, when ventilation systems are normally shut off. Leaving the ventilation system on during and for a while after housekeeping is done gives the restaurant a chance to air out. The net result is a healthier environment for the cleaning crew and a better-smelling restaurant for your guests.

Use of negative ion and ozone generators to help control odors is a controversial practice and is not recommended as a general practice during any occupied period. Negative ion generators cause airborne materials to collect on all kinds of surfaces in the restaurant, adding to cleaning costs. Ozone is an effective agent for destruction of odors, but may be a serious contaminant in an indoor environment, both on its own and also as it reacts with other chemicals in the air. Be aware that high concentrations of ozone may damage vinyl and other synthetic materials and may bleach fabrics. Ozone generators may be useful in eliminating odors during unoccupied periods when no customers, staff, cleaning crews, or managers are present. A timer for turning on and off the ozone generator without anyone present is recommended, and the person assigned to setting up, operating, and removing the device should be fully trained in its proper use. An ozone generator should be viewed as an off-hours supplement for ventilation with outdoor air not as a replacement.

